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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,280	01/14/2002	Yung Yip	10305US01	4504

7590 .02/03/2004

Attention: Eric D. Levinson
Imation Corp.
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EXAMINER	
NGUYEN, TANH Q	

ART UNIT	PAPER NUMBER
2182	8

DATE MAILED: 02/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PRE

Office Action Summary	Application N .	Applicant(s)	
	10/047,280	YIP ET AL.	
	Examiner	Art Unit	
	Tanh Q. Nguyen	2182	

-- The MAILING DATE of this communication appears on the cov r sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19 and 26-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19 and 26-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 4-5, 7-8, 10, 14-15, 18, 26-27, 29-31, 36 are rejected under 35 U.S.C. 102(e) as being anticipated by **Greco (US 2003/0070056 A1)**.

3. As per claim 1, **Greco** discloses a system [FIG. 1] comprising:

a data cartridge [40, FIG. 2] carrying a non-tape storage medium [11, FIG. 1], wherein the data cartridge includes read/write circuitry [12, FIG. 1 and FIG.2] to access the non-tape storage medium and an external electrical connector coupled to the read/write circuitry [18, FIG. 1; 48, FIG. 2]; and

a tape drive emulator [10, 17, FIG. 1; 209, 210, 215, 216, 218, FIG. 7; [0044]-[0045]; [0069]-[0084]] having an electrical socket [19, FIG. 1; 140, FIG. 3] to receive the electrical connector of the data cartridge.

4. As per claims 2, 4, 5, 7, 8, 10, 14, 15, 18, Greco discloses a socket having a set of connectors that engage the electrical connections of the data cartridge using a

normal force on the cartridge ([0036]-[0040]), hence the socket being a zero insertion force socket – claim 2;

the socket including a mechanical actuation mechanism operable by a data cartridge library automation system [90, FIG. 4] to electrically couple the data cartridge to the tape drive emulator ([0042]-[0043]) – claim 4;

the tape drive emulator comprising a host interface [15, FIG. 1] to electrically couple the tape drive emulator to a host computing device [14, FIG. 1] – claim 5;

the tape drive emulator comprising a translation unit [209, 210, 215, 216, 218, FIG. 7] to translate commands between the host interface and the electrical socket, the translation unit receiving data stream commands from the host interface and translates the data stream commands into data block commands ([0044]-[0045]; [0069]-[0084]) – claims 7-8;

the non-tape storage medium comprising a disk-shaped storage medium [11, FIG. 1] – claim 10;

an automation unit [90, FIG. 4] to selectively retrieve the data cartridge [40, FIG. 4] from a plurality of data cartridges conforming to industry standard dimensions for magnetic tape data cartridges ([0033]) – claim 14;

the data cartridge comprising a housing conforming to industry standard dimensions for magnetic tape data cartridges ([0033]) – claim 15;

the host computing device not requiring reprogramming to handle the non-tape storage medium, and expecting a certain format (e.g. tape format), using normal commands (e.g. tape commands [0044]), hence the tape drive emulator identifying itself

as an industry standard tape drive in response to a query from a host computing device – claim 18.

5. As per claims 26-27, 29-31, 36, see the rejections to claims 1-2, 4-5, 7, 18 above.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 3, 6, 12, 13, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Greco** in view of **Albrecht et al. (US 2002/0159182 A1)**.

9. As per claims 3 and 28, Greco discloses the tape drive emulator including a loader [100, FIG. 3] mechanically actuating the electrical socket upon insertion of the

data cartridge ([0040]), hence discloses the claimed invention except for the tape drive emulator including a sensor to sense the insertion of the data cartridge. Greco, however, discloses an example of a loader being described by copending US patent application S/N 09/842,030 by Albrecht - US 2002/0159182 A1 ([0039]).

Albrecht discloses a loader including sensors [115, 116, FIG. 14] for detecting a cartridge being inserted in the loader and enabling the loader to load the data cartridge ([0072]-[0073]; [0091]-[0092]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Albrecht's sensor in Greco's loader since Albrecht's loader was used as an example of a loader in Greco' tape drive emulator, and since the incorporation would allow Greco's tape drive emulator to detect a cartridge being inserted in the loader and enable the loader to load the data cartridge.

10. As per claim 6, Greco discloses the claimed invention except for the host interface conforming to one of the SCSI, the Fiber Channel, the NDMP and the EIDE/ATA interfaces. Greco, however, discloses an embodiment of a data cartridge being described by copending US patent application S/N 09/842,030 by Albrecht - US 2002/0159182 A1 ([0033]).

Albrecht discloses the data cartridge communicating at the data transfer interface using the SCSI format ([0055]), hence the tape drive emulator communicating with the data cartridge using an interface conforming to the SCSI interface. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a

host interface conforming to the SCSI interface to maintain compatibility between the tape drive emulator and the host computing device.

Since Greco discloses an embodiment of a data cartridge being described by Albrecht, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a SCSI interface as the host interface in Greco's tape drive emulator to enable data transfer between the host computing device and the tape drive emulator and to maintain compatibility between the tape drive emulator and the host computing device.

It is further noted that since there are a plethora of interface formats that can be used as the host interface format to enable communication between the host computing device and the tape drive emulator, there is no patentability in using a host interface with a particular format.

11. As per claim 12, Greco discloses the claimed invention except for the data cartridge comprising a disk drive controller to control access to the non-tape storage medium, wherein the controller communicates with the tape drive emulator according to one of the SCSI, the Fiber Channel, the NDMP and the EIDE/ATA interfaces. Greco, however, discloses an embodiment of a data cartridge being described by copending US patent application S/N 09/842,030 by Albrecht - US 2002/0159182 A1 ([0033]).

Since it was well known in the art at the time the invention was made for a disk drive to comprise a disk drive controller to control access to the disk, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

incorporate a disk controller in Greco's data cartridge to allow Greco's data cartridge to control access to the non-tape storage medium.

Albrecht discloses the data cartridge communicating at the data transfer interface using the SCSI format ([0055]), hence the data cartridge communicating with the tape drive emulator using an interface conforming to the SCSI interface.

Since Greco discloses an embodiment of a data cartridge being described by Albrecht, and since Albrecht discloses the data cartridge communicating with the tape drive emulator using an interface conforming to the SCSI interface, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a disk drive controller that use SCSI interface in Greco's data cartridge to control access to the non-tape storage medium.

It is further noted that since there are a plethora of interface formats that can be used to allow the disk drive controller to communicate with the tape drive emulator, there is no patentability in using a particular interface format for communication between the disk drive controller and the tape drive emulator.

12. As per claim 13. Greco discloses the claimed invention except for the socket of the tape drive emulator providing power to the controller of the data cartridge via the electrical connector of the data cartridge. Greco, however, discloses an embodiment of a data cartridge ([0033]) and an example of a loader ([0039]) being described by copending US patent application S/N 09/842,030 by Albrecht - US 2002/0159182 A1.

Albrecht discloses the socket [130, FIG. 11; 141, FIG. 23] of the transfer station (loader [100, FIG. 11 and FIG. 23]) providing power to the data cartridge [40, FIG, 23]

via the electrical connector [48, FIG. 3] of the data cartridge ([0096]-[0097]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Albrecht's power transfer from the loader to the data cartridge in Greco's system since Albrecht's loader was used as an example of a loader in Greco' tape drive emulator and Albrecht's data cartridge was used as an embodiment of Greco's data cartridge, and since such incorporation would allow Greco's tape drive emulator to provide power to operate the disk drive of the data cartridge.

13. Claims 9, 19, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Greco** in view of **Plotkin et al. (USP 5,297,124)**.

14. As per claim 9, Greco discloses the claimed invention except for the translation unit specifically comprising a data buffer for buffering the data stream commands.

Plotkin discloses a tape drive emulator comprising a data buffer [24, FIG. 1] for buffering the data stream commands (col. 3, lines 18-19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Plotkin's data buffer into Greco's translation unit to allow for buffering of the data stream commands in the translation unit.

15. As per claims 19 and 37, Greco discloses the claimed invention except for the tape drive emulator determining the capacity of the non-tape storage medium within the data cartridge and communicating the capacity to a host computing device. Greco, however, discloses a plurality of non-tape storage media ([0070]), hence the need to

determine the capacity of the corresponding storage medium and to communicate the capacity to the host computing device for proper storage allocation and operation.

Plotkin discloses the tape drive emulator determining the capacity of the non-tape storage medium within the data cartridge and communicating the capacity to a host computing device (col. 3, lines 48-52) to allow for proper translation between tape and non-tape format (Abstract, lines 11-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Plotkin's teachings of the capacity of the non-tape storage medium in Greco's non-tape storage medium for the purpose of providing the capacity of Greco's non-tape storage medium to the host computing device to ensure proper storage allocation and operation and to allow for proper translation between tape and non-tape format.

16. Claims 11, 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Greco**. Claims 6 and 12 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over **Greco**.

17. As per claim 11, Greco further discloses the data cartridge [40, FIG. 2] including a self-contained disk drive [12, FIG. 1 and FIG. 2] housing the disk-shaped storage medium [11, FIG. 1], therefore discloses the claimed invention except for the disk drive housing a disk drive controller.

Since it was well known in the art at the time the invention was made for a disk drive to comprise a disk drive controller to control access to the disk, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to incorporate a disk controller in Greco's data cartridge to allow Greco's data cartridge to control access to the non-tape storage medium.

18. As per claims 32-33, Greco further discloses the non-tape storage medium comprising a disk-shaped storage medium [11, FIG. 1], therefore discloses the claimed invention except for the tape drive emulator comprising a disk drive controller.

Since it was well known in the art at the time the invention was made for a disk drive to comprise a disk drive controller to control access to the disk, and since it has been held that rearranging parts of an invention involves only routine skill in the art (*In re Japikse*, 86 USPQ 70), it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a disk controller in Greco's tape drive emulator to allow Greco's tape drive emulator to control access to the non-tape storage medium.

19. As per claim 6, Greco discloses the claimed invention except for the host interface conforming to one of the SCSI, the Fiber Channel, the NDMP and the EIDE/ATA interfaces. Since there are a plethora of interface formats that can be used as the host interface format to enable communication between a host computing device and a tape drive emulator, it would have been obvious to one of ordinary skill in the art at the time the invention was made that any format would be suitable - as long as there is compatibility - for the purpose of allowing communication between Greco's host computing device and tape drive emulator.

20. As per claim 12, Greco discloses the claimed invention except for the data cartridge comprising a disk drive controller to control access to the non-tape storage medium, wherein the controller communicates with the tape drive emulator according to one of the SCSI, the Fiber Channel, the NDMP and the EIDE/ATA interfaces.

Since it was well known in the art at the time the invention was made for a disk drive to comprise a disk drive controller to control access to the disk and since Greco discloses the data cartridge comprising a disk drive [12, FIG. 1], it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a disk controller in Greco's data cartridge to allow Greco's data cartridge to control access to the non-tape storage medium.

Since there are a plethora of interface formats that can be used to allow the disk drive controller to communicate with the tape drive emulator, it would have been obvious to one of ordinary skill in the art at the time the invention was made that any format would be suitable - as long as there is compatibility - for the purpose of allowing communication between Greco's disk drive controller and tape drive emulator.

21. Claims 16-17 and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Greco** in view of **Albrecht et al.** and further in view of **Goodman et al. (US 2002/0169521 A1)**.

Albrecht discloses the tape drive emulator having a form factor such that the location of the socket [120, 130, FIG. 11] conforms to the location of a slot within the industry standard tape drive [FIGs. 11, 20, 22] and the tape drive emulator comprising a

power connector [130, FIG. 11; 141, FIG. 23] and one or more mounting holes [155, 156, FIG. 11], with the location of the power connector and the location of the mounting holes conforming to the industry standard tape drive ([0069]; [0075]; [0084]-[0086]; [0088]), therefore disclosed the claimed invention except for the dimensions of the tape drive emulator specifically conforming to the industry standard tape drive.

Goodman discloses a data storage library featuring multipurpose slots, each configured to receive a media drive (e.g. IBM 3570 tape drive: [0031], [0040]) or other various modules (Abstract, lines 1-6) to allow the data storage library to be easily updated with new equipment ([0004]), the other various modules including storage emulators ([0009]), hence teaches the storage emulators having a form factor conforming to the industry standard tape drive.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the dimensions of Greco/Albrecht's tape drive emulator to conform to the industry standard tape drive because such dimensions would allow for easy replacement of existing tape drives with tape drive emulators and therefore updating the data storage library with new equipment without wasting the slots in a data storage library such as Goodman's data storage library.

Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the dimensions of Greco/Albrecht's tape drive emulator to conform to the industry standard tape drive, since such a modification would have involved a mere change in the size of a component. A change in size is generally

recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Response to Arguments

22. Applicant's arguments with respect to claims 1, 2, 13-17 and 26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanh Quang Nguyen whose telephone number is (703) 305-0138, and whose e-mail address is tanh.nguyen36@uspto.gov. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin, can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 for After Final, Official, and Customer Services, or (703) 746-5672 for Draft to the Examiner (please label "PROPOSED" or "DRAFT").

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TQN
January 30, 2004